

# Principles of Motor Learning and Motor control: Supported in CE?

Helen Bourke-Taylor

Occupational Therapist

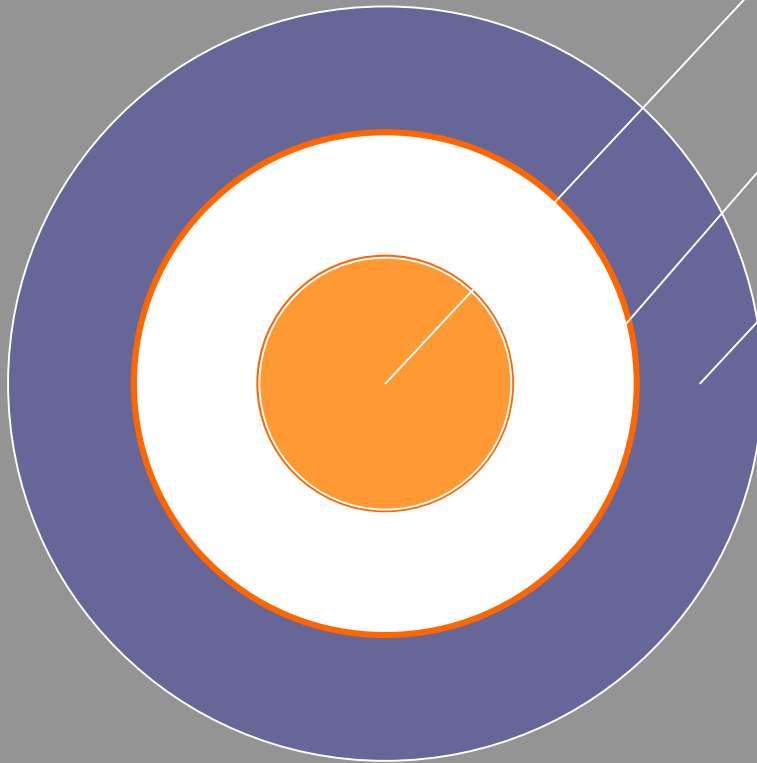
B App Sc OT; MS OT; PhD candidate

# What is the goal of an intervention for a child with cerebral palsy?

- Support participation in roles and activities available to the child--present and future.
- Reduce the impact of secondary health and disability issues--present and future.

# Frameworks that therapists use:

- WHO ICF universal guide (WHO ICF, 2002)
- Family centered care (Rosenbaum et al, 1998)
- Multivariate model (Bartlett & Palisano, 2002)
- Person-occupation-environment (Law et al, 1996)
- Model of Human Occupation (Keilhofner, 2002)



## Person

Strengths and limitations

## Occupation

Task parameters/tools/purpose

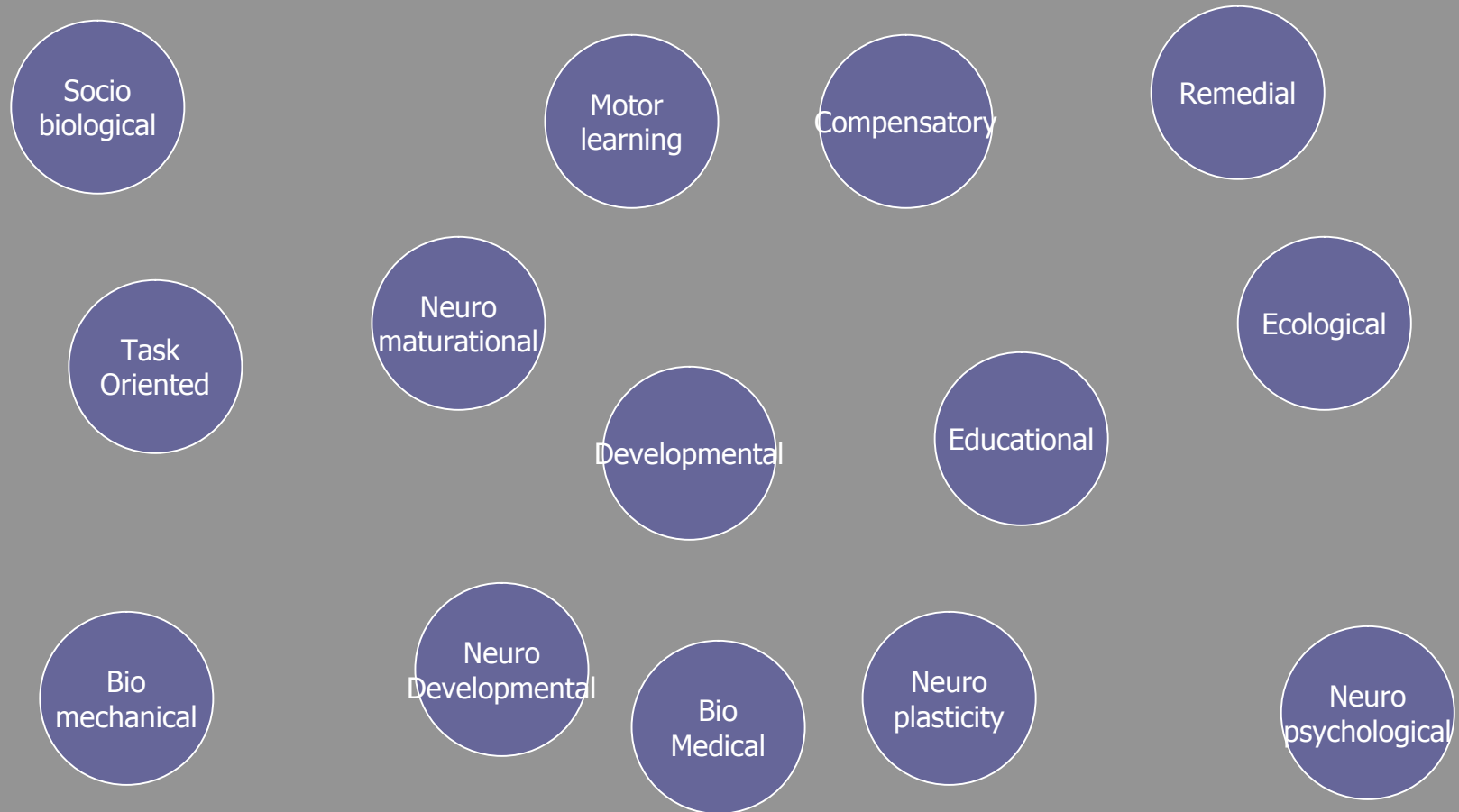
## Environment

Physical/attitudinal/cultural

# Understanding CP

- Therapists acknowledge the new definition of CP that emphasizes the heterogeneity within the condition—etiology, epidemiology. (Bax, Goldstein, Rosenbaum, Leviton, & Peneth, N., 2005)
- By embracing this definition, one acknowledges the core feature as abnormal motor behaviour, AND the “disruption to bio-psychosocial development”
- Therefore past emphasis on the motor system must also move forward to the whole child.

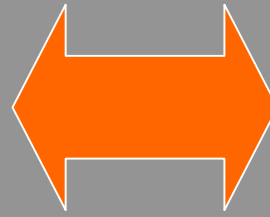
# Theories underlying practice



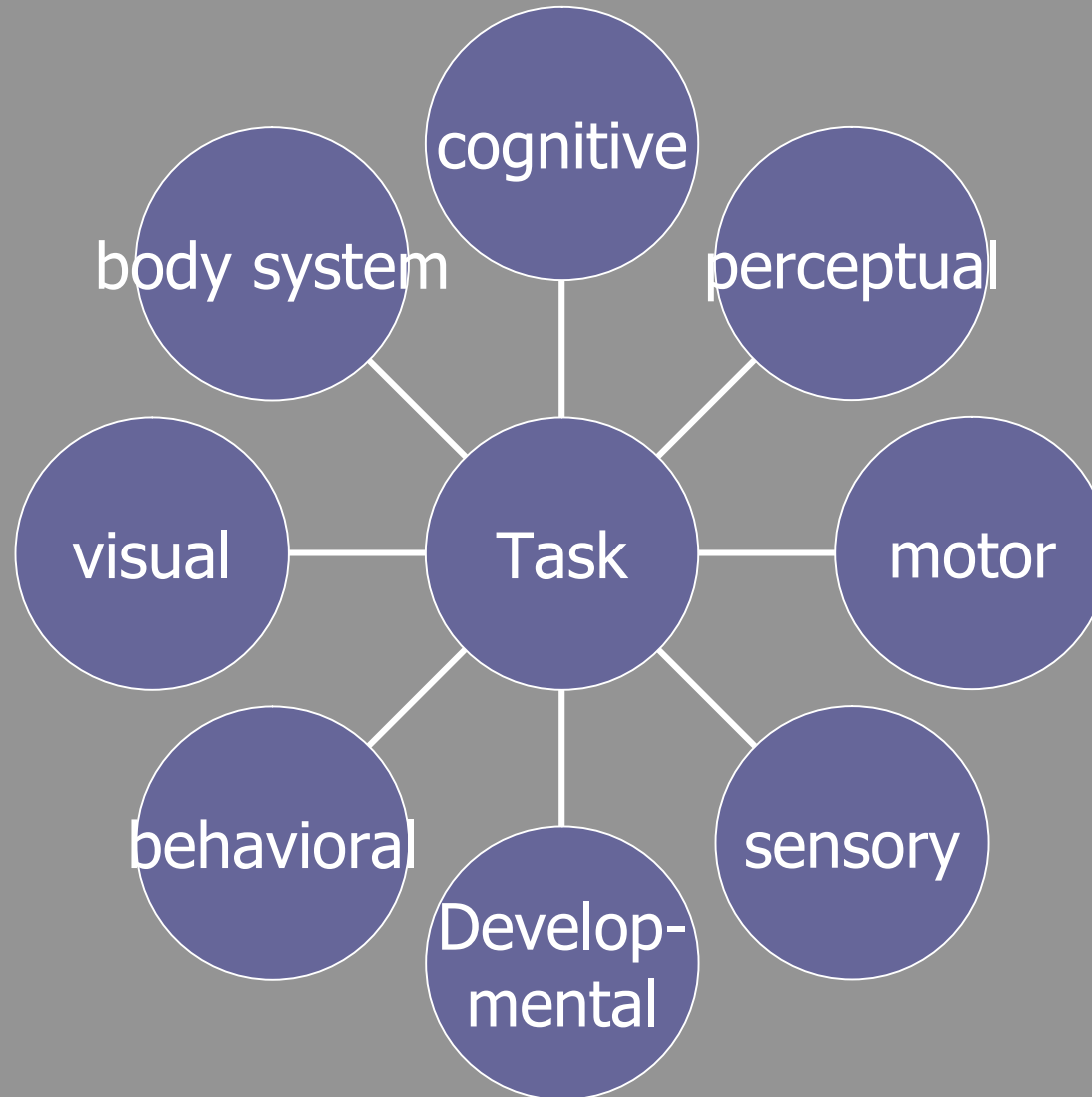
# Emerging/Existing practice methods

- Evidence based on WHO ICF (Majnemer, 2006)
- Strengthening/exercise/activity based (Damiano, 2006; Dodd, Taylor & Graham, 2003)
- CIMT/BIT (Taub et al, 2004; Charles & Gordon, 2006)
- NDT (Butler and Darrah, 2001)
- Goal directed (Eliasson, 2005)
- Participation in real contexts (King et al, 2003)
- Cognitive orientation to occupational performance (CO-OP) (Polatajko & Mandich, 2004)
- Family Centered Functional Therapy (FCFT) (Lammi & Law, 2003)

Achieve goals



Identify obstacles



# CE addresses the child's learning needs.

- Understanding the learner
- Enabling learning through
  - 1. Creating an environment that motivates
  - 2. Multimodal learning opportunities

# Key Concepts in CE

Understand  
the  
learner



Enable  
the  
learner



Child learns skills for life

# Unique facilitations and practices are used to enable the learner:

- Conductor
- Group
- Equipment
- Rhythmic intention
- Task series
- Daily program
- Child centered
- Motivation
- Self concept
- Self esteem
- Orthofunction  
Personality

# Motivation=real self+imagined self



Watching



Listening



Learning

Trying



# Conductor:

- Group leader “conducts”
- Trained professional
- Transdisciplinary model: Various professionals act as conductor
- Leads with routine, tasks, rhythm, songs and direction for group.









# Group:

- CE delivered as group program
- Children grouped by age, needs, rate of progress
- Social context

**Camaraderie**

**Friendships**

**Motivation**

**Support**

**Challenge**









# Equipment:

- Specifically designed to enable stability when needed. Proper position can be maintained with minimal adult intervention.
- Promotes movement that allows achievement
- Fully adjustable to suit child's skill level and size
- Plynth; ladder back chair; stool; blocks; dowel; rings; arm bands...







# Rhythmic Intention:

- Verbal self direction
- Follows required rhythm for child's success
- Description of movement being attempted/achieved
- Rhythmical speech; key word repetition; counting; song; chant; rhyme

A young child with blonde hair, wearing a blue t-shirt and dark shorts, is standing on a wooden step. The child is holding onto a wooden table with both hands. The child is smiling and looking towards the camera. A speech bubble is positioned above the child's head, containing text about posture. The background is a blue wall and a wooden structure.

My feet are flat  
My knees are straight  
My bottom is in  
My back is straight  
My head is in the middle  
My hands are holding on, and  
I am standing tall!



I reach up with my left hand  
I reach up with my right hand  
I hold on with both hands  
I PULL myself UP!



# Task Series:

- Elements of every activity throughout the day that are designed with each child's learning needs in mind
- Threaded through each aspect of daily program
- Based on what the child needs to learn to overcome challenges/obstacles caused by CP



Friends sitting, ready to paint...





# Daily Program:

- Structured routine that mirrors normal daily activities that the child needs to learn
- Life skills emphasis
- Provides many opportunities for learning and practicing skills
- Specifically sequenced and organized with the task series of the group and each child in mind
- Predictable, themed, engaging.













Does CE use principles of Motor Learning and Motor control?

**YES!**

# References provided in handout.



With thanks to the children in the slides and their families, as well as all staff at the Center for Independence through Conductive Education.